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(Reaffirmed 2001)

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कुण्डलन तारों के विशेष प्रकारों की विशिष्टि

भाग 17 पॉलीविनाइल एसीटल इनैमलकृत आयताकार ताँबा के तार वर्ग 105

Indian Standard

SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES

PART 17 POLYVINYL ACETAL ENAMELLED RECTANGULAR COPPER WIRE, CLASS 105

ICS 29.060.10

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

July 1996

Price Group 2

Winding Wires Sectional Committee, ET 33

NATIONAL FOREWORD

This Indian Standard which is identical to IEC 317-17 (1990) issued by the International Electrotechnical Commission was adopted by the Bureau of Indian Standards on the recommendation of the Winding Wires Sectional Committee ET 33 and approval of the Electrotechnical Division Council.

Presently requirements of enamelled round and enamelled rectangular winding wires are covered under IS 4800 (series) and IS 3855 (series) respectively. Over the years, changes in technology and developments, resulted in publishing of number of amendments to these standards. Even though Indian standards were following the developments in IEC level, but for some specific properties namely resistivity of copper; methods of test, etc, IEC standards were not adopted intotality. Keeping in view the present trend in the industry it has been decided to align the Indian standards on winding wires by adopting the IEC standards in totality.

The series of IEC standards on methods of tests (IEC 851 series) and particular types of winding wires (IEC 317 series) were decided and adopt with deviation as follows:

> IEC 851 (series) 'Methods of test for winding wires' has already been adopted and published as IS 13778/IEC 851(series) in 6 part.
>
> The adoption of IEC 317 (series) on particular type of winding wires is being carried out in phased manner under the series IS 13730/IEC 317.

With the publication of the new series of standards, corresponding IS 4800 (series) and IS 3855 (series) would be withdrawn.

The test of IEC standards has been approved as suitable for publication as Indian standard without deviation. Certain conventions are, however, not identical to those used in Indian Standards Attention is particulary drawn to the following:

a) Wherever the word 'International standard' appear referring to this standard, they should be read as 'Indian standard', and
b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as a decimal marker.

Only the English text of the International Standard had been retained while adopting it as Indian standard.

CROSS REFERENCES

In this Indian Standard, wherever reference appears to IEC 317-0-2 (1990) 'Specification for particular types of winding wires — Part 0 : General requirements, Section 2 Enamelled rectangular copper wire', shall be read in its respective place as IS 13730 (Part 0/Sec 2) : 1993/IEC 317-0-2 (1990) 'Specifications for particular types of winding wires — Part 0 : General requirements, Section 2 Enamelled rectangular copper wire' which is identical to IEC 317-0-2 : 1990.

For the purpose of deciding whether a particular requirements of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

IS 13730 (Part 17) : 1996
IEC 317-17 : (1990)

Indian Standard

SPECIFICATIONS FOR PARTICULAR TYPES OF WINDING WIRES

PART 17 POLYVINYL ACETAL ENAMELLED RECTANGULAR COPPER WIRE, CLASS 105

1 Scope

This International Standard specifies the requirements of enamelled rectangular copper winding wire of class 105 with a sole coating based on polyvinyl acetal resin, which may be modified providing it retains the chemical identity of the original resin and meets all specified wire requirements.

NOTE - A modified resin is a resin that has undergone a chemical change, or contains one or more additives to enhance certain performance or application characteristics.

Class 105 is a thermal class that requires a minimum temperature index of 105 and a heat shock temperature of at least 155 °C.

The temperature in degrees Celsius corresponding to the temperature index is not necessarily that at which it is recommended that the wire be operated and this will depend on many factors, including the type of equipment involved.

The range of nominal conductor dimensions covered by this standard is:

- width:	min.	2,0 mm	max.	16,0 mm;
- thickness:	min.	0,80 mm	max.	5,60 mm.

Wires of grade 1 and grade 2 are included in this specification and apply to the complete range of conductors.

The specified combinations of width and thickness as well as the specified ratio width/thickness are given in IEC 317-0-2.

2 Normative references

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid international standards.

IEC 317-0-2: 1990, *Specifications for particular types of winding wires - Part 0: General requirements - Section 2: Enamelled rectangular copper wire.*

3 Definitions and general notes on methods of test

For definitions and general notes on methods of test, see clause 3 of IEC 317-0-2.

In case of inconsistencies between IEC 317-0-2 and this standard, IEC 317-17 shall prevail.

4 Dimensions

See clause 4 of IEC 317-0-2.

5 Electrical resistance

See clause 5 of IEC 317-0-2.

6 Elongation

See clause 6 of IEC 317-0-2.

7 Springiness

See clause 7 of IEC 317-0-2.

8 Flexibility and adherence

8.1 *Mandrel winding test*

The coating shall show no crack after the wire has been bent flatwise and edgewise on a mandrel with a diameter as specified in table 1.

Table 1 - Mandrel winding

Wire bent on		Mandrel diameter
Width	Sizes up to and including 10 mm	2 x width
	Sizes over 10 mm	3 x width
Thickness	All sizes	2 x thickness

8.2 *Stretching test*

The wire shall be stretched by 20 %.

The distance of loss of adhesion shall be less than 1x width.

9 Heat shock

See clause 9 of IEC 317-0-2, where the minimum heat shock temperature shall be 155 °C.

10 Cut-through

Test required but not yet under consideration.

11 Resistance to abrasion

Test inappropriate.

12 Resistance to solvents

See clause 12 of IEC 317-0-2.

13 Breakdown voltage

See clause 13 of IEC 317-0-2, where the elevated temperature shall be 105 °C.

14 Continuity of insulation

Test inappropriate.

15 Temperature index

See clause 15 of IEC 317-0-2, where the minimum temperature index shall be 105.

16 Resistance to refrigerants

Test inappropriate.

17 Solderability

Test inappropriate.

18 Heat or solvent bonding

Test inappropriate.

19 Dielectric dissipation factor

Test inappropriate.

20 Resistance to transformer oil

Test under consideration.

21 Loss of mass

Test inappropriate.

22 High temperature failure

Test inappropriate.

30 Packaging

See clause 30 of IEC 317-0-2.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards Monthly Additions'.

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